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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,366	07/01/2003	Kenkichi Shimomura	2611-0192P	1162

2292 7590 03/12/2007  
BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER
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LEE, DAVID J

ART UNIT	PAPER NUMBER
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2613

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/12/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/12/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/609,366	SHIMOMURA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	David Lee	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 7, 12, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 2, 7, 12, and 14, it is unclear what is meant by “a clock signal that is determined by a signal frequency.” A signal frequency in itself cannot “determine” a clock signal. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martensson et al. (US Pub. No. 2003/0219259 A1) in view of Sasai et al. (US Patent No. 6,459,519 B1).

Regarding claims 1, 6, 11, and 13, Martensson an optical transmitter, comprising an optical modulation processing unit that includes: a signal carrier-suppressed pulse modulating unit that performs signal carrier-suppressed pulse modulation on a light source signal to thereby create a carrier-suppressed-return-to-zero signal (20 of fig. 9; see also paragraph 0030); a phase

modulating unit that performs phase modulation on a data signal based on the carrier-suppressed-return-to-zero signal to thereby convert the data signal into a phase-modulated signal (50 of fig. 9). Martensson does not expressly disclose an optical filtering unit that filters out redundant frequency components included in the phase-modulated signal. Sasai, from a similar field of endeavor, teaches an optical transmitter, comprising an optical modulation processing unit that includes: a signal carrier-suppressed pulse modulating unit that performs signal carrier-suppressed pulse modulation on a light source signal (120-1 of fig. 3), a phase modulating unit that performs phase modulation on a data signal (120-2 of fig. 3; see e.g., col. 18, line 44) and an optical filtering unit that filters out redundant frequency components included in the phase-modulated signal (130 of fig. 1). A skilled artisan would have been motivated to incorporate an optical filtering unit in the system of Martensson in order to filter out either the upper or lower sideband. It would have been obvious to a skilled artisan at the time of invention to incorporate a filtering unit in order to filter out sidebands to increase transmission bandwidth.

Regarding claims 2, 7, 12, and 14, as it is best understood in view of the 112 rejection above, Martensson teaches that the signal carrier-suppressed pulse modulating unit performs the signal carrier-suppressed pulse modulation based on a clock signal of a frequency that is determined by a signal frequency of the data signal (40 of fig. 9), and creates the carrier-suppressed-return-to-zero signal such that peaks of an optical frequency spectrum are separated from each other by the signal frequency (this occurs at data modulator 20 of fig. 9); and the optical filtering unit filters out all frequency components that fall outside a frequency band determined by the signal frequency (see fig. 4: only the upper or lower sidebands are filtered out).

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Regarding claims 3 and 8, Martensson teaches the limitations of claims 1 and 6 but does not expressly disclose that there are plurality of modulation units whose outputs are multiplexed. Examiner takes Official notice that it is well known to implement this kind of structure. It would have been obvious to a skilled artisan at the time of invention to use a plurality of modulators and combine their outputs using a multiplexer in order to increase transmission bandwidth and speed.

Regarding claims 4 and 9, Martensson teaches the limitations of claims 1 and 6 but does not expressly disclose a differential coding unit that performs differential-coding on the data signal. Examiner takes Official notice that performing differential coding on a data signal is well known in the art. It would have been obvious to a skilled artisan at the time of invention to incorporate differential coding in order to optimize signal transmission and increase efficiency.

Regarding claims 5 and 10, Martensson teaches that the signal carrier-suppressed pulse modulating unit is a Mach-Zender interferometer optical modulator (see middle of paragraph 0022).

### ***Response to Arguments***

5. Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lee whose telephone number is (571) 272-2220. The examiner can normally be reached on Monday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David Lee  
Patent Examiner



JASON CHAN  
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